



Water and Climate Update

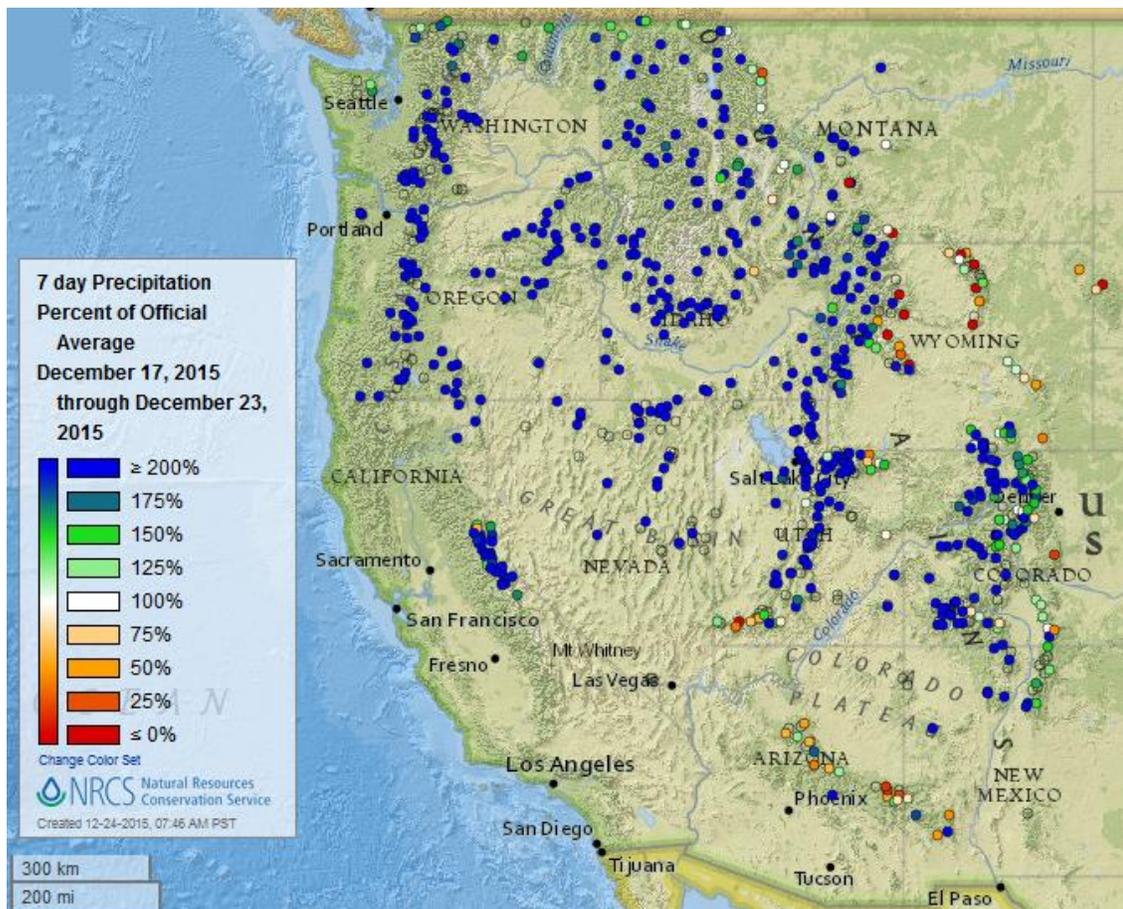
December 24, 2015

The Natural Resources Conservation Service produces this weekly report using data and products from the National Water and Climate Center and other agencies. The report focuses on seasonal snowpack, precipitation, temperature, and drought conditions in the U.S.

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Weekly Highlight: A Very Wet Week for Most of the Mountains in the West.

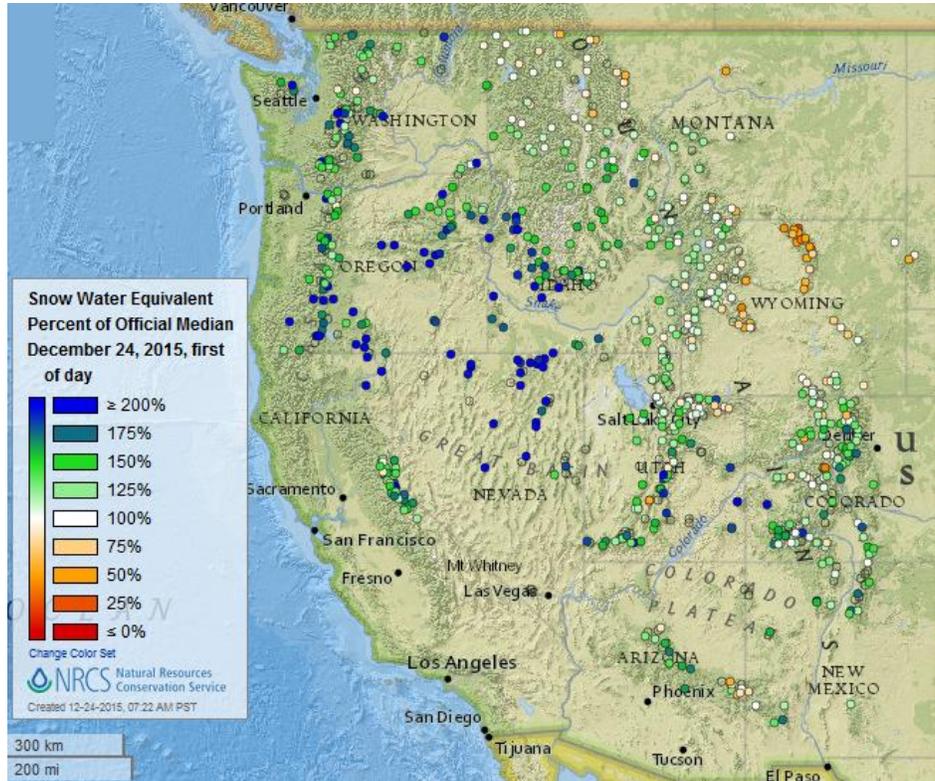
The 7-day [precipitation percent of average](#) map shows that much of the West has many mountain SNOTEL stations reporting more than 200 percent of average.



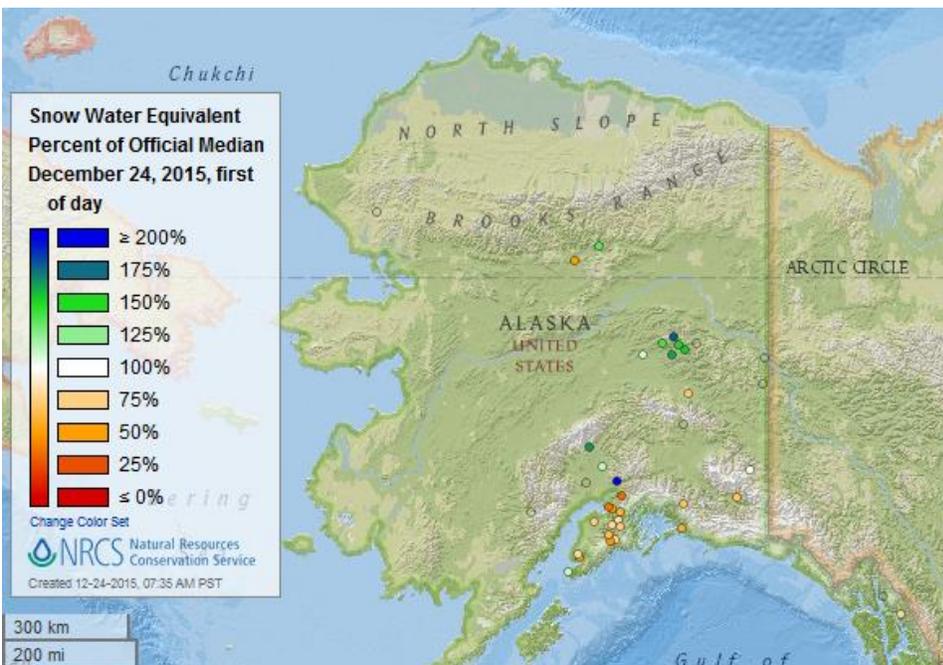
Snow

Current Snow Water Equivalent, Western Mountain Sites (NRCS SNOTEL Network)

The current [snow water equivalent percent of median](#) map shows that the West has a mix of snowpack conditions at this time. Many stations in the West are reporting above median snowpack at this time. The Bighorn Mountains of Wyoming, and a few stations in the central and northern Rockies have areas of very low snowpack at this time.

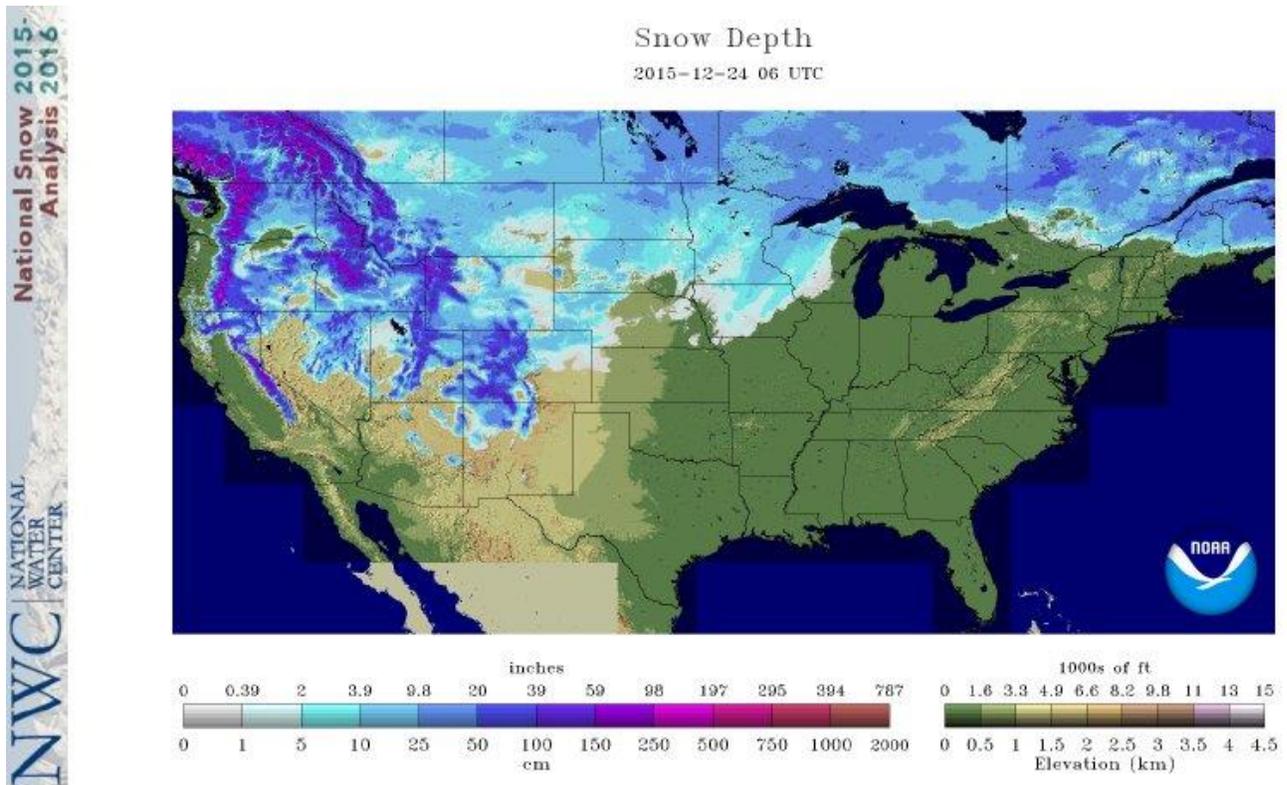


Current Snow Water Equivalent, NRCS SNOTEL Network



The current [snow water equivalent percent of median](#) map for Alaska shows median to above median snowpack in the Interior and median to below median along the southern part of the state.

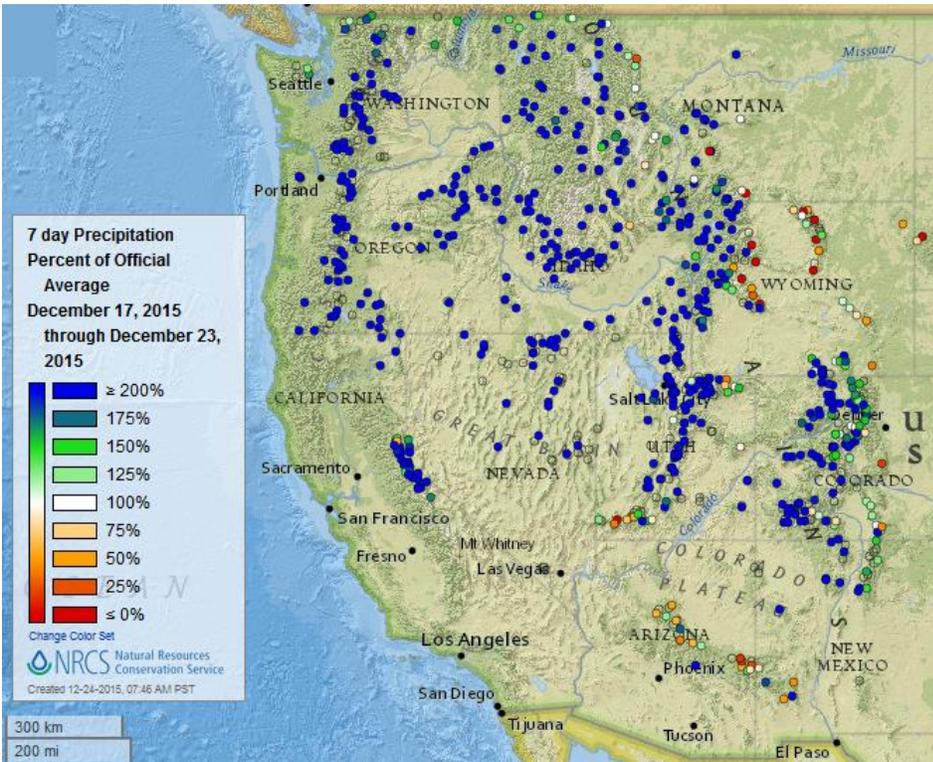
Current Snow Depth, National Weather Service (NWS) Networks



The National Water Center's current [snow depth](#) map for the continental U.S. shows areas of significant snow accumulation across from the Pacific Northwest and Sierra Nevada to the Rocky Mountains and across the Northern Great Plains to the upper Midwest. There is also snowpack increases in northern Maine.

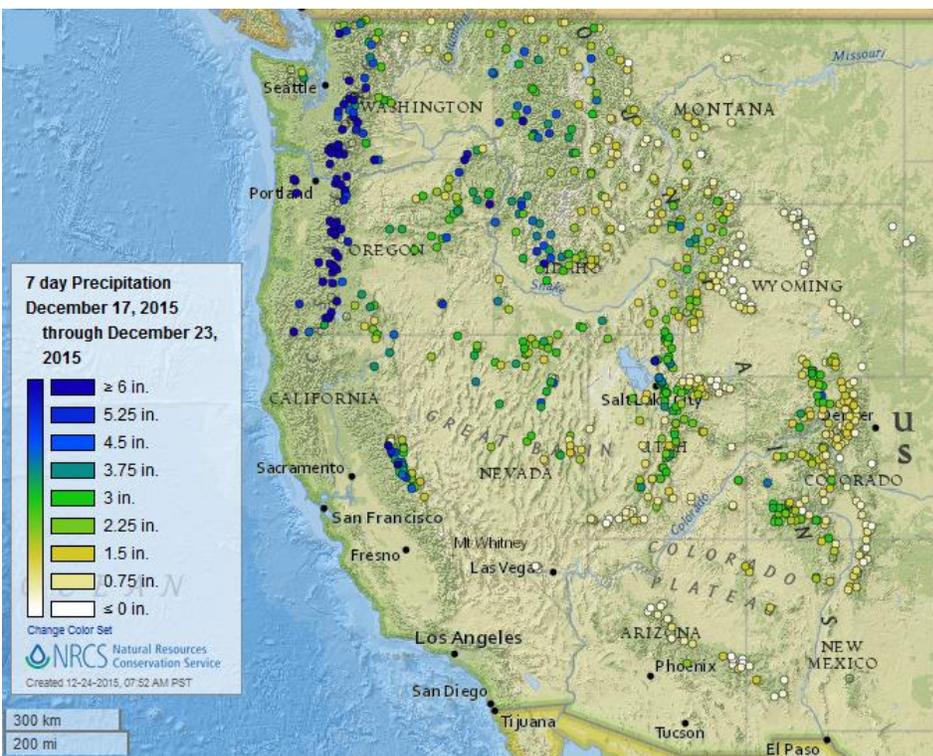
Precipitation

Last 7 Days, Western Mountain Sites (NRCS SNOTEL Network)



The 7-day [precipitation percent of average](#) map shows that much of the West, has many stations reporting more than 200 percent of average.

A few stations in Montana, Wyoming, Utah, Colorado, Arizona and New Mexico were reporting near to below average.

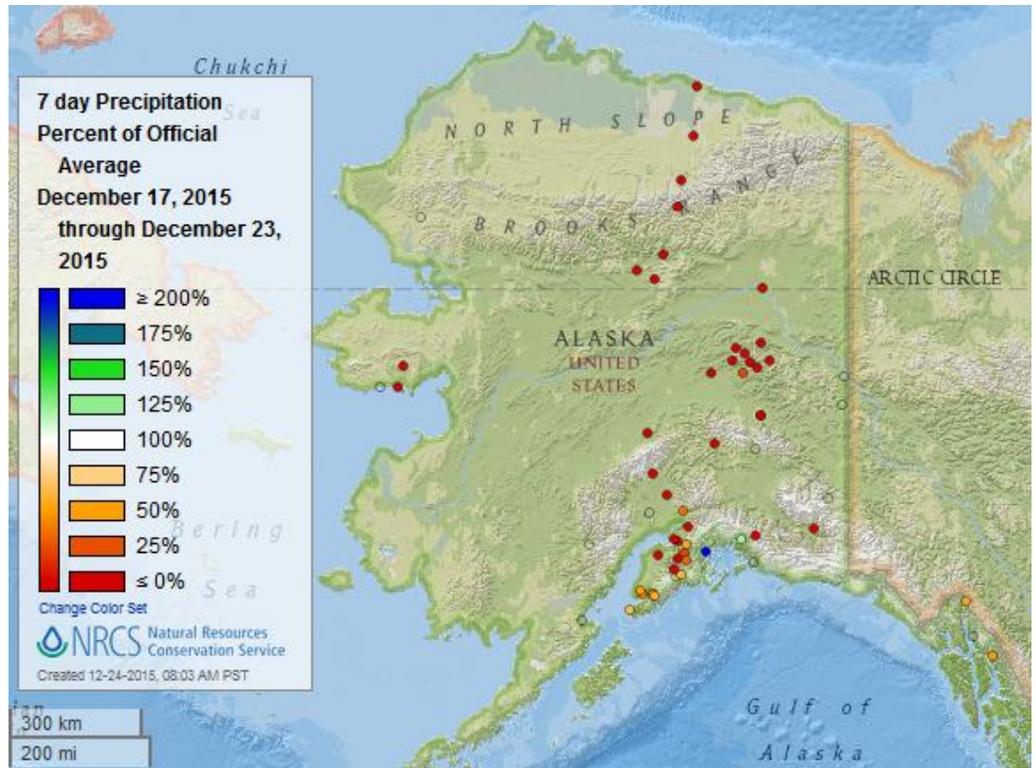


The [total precipitation](#) map shows over six inches of precipitation fell across the Cascades of the Pacific Northwest, the Sierra Nevada and at a few stations elsewhere. Farther east had significant, but lesser amounts of precipitation.

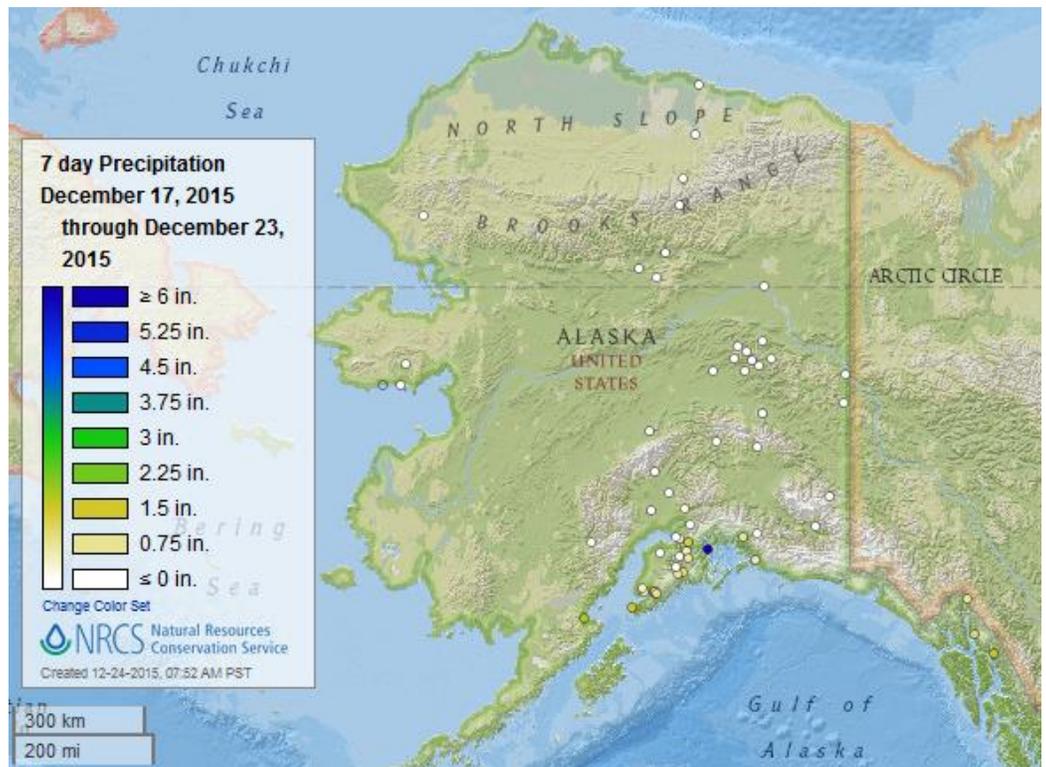
Many stations across the West received nearly 1.5 inches for the week. Little to no precipitation fell along eastern slope of the Rockies and farther east, and the Southwest.

Water and Climate Update

The Alaska [precipitation percent of average](#) map for the last seven days shows primarily well below average precipitation across much of the state.



The Alaska seven day [total precipitation](#) map shows that little to no total precipitation fell in much of the state this week. Southern Alaska saw less than 1.5 inches at a few stations along the coast.



Last 7 Days, National Weather Service (NWS) Networks

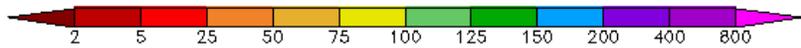
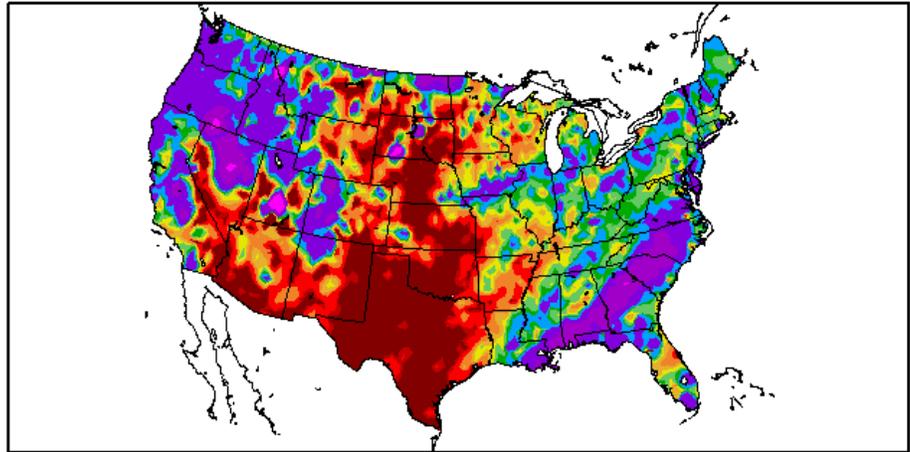
Source: Regional Climate Centers

The [percent of normal precipitation](#)

map shows well above normal precipitation from the Pacific Northwest across much of the West. Above normal precipitation was also reported across much of the Southeast, and in smaller areas of the Plains and Northeast.

Very dry conditions dominated the majority of the Southwest, Texas and the Plains.

Percent of Normal Precipitation (%)
12/17/2015 – 12/23/2015



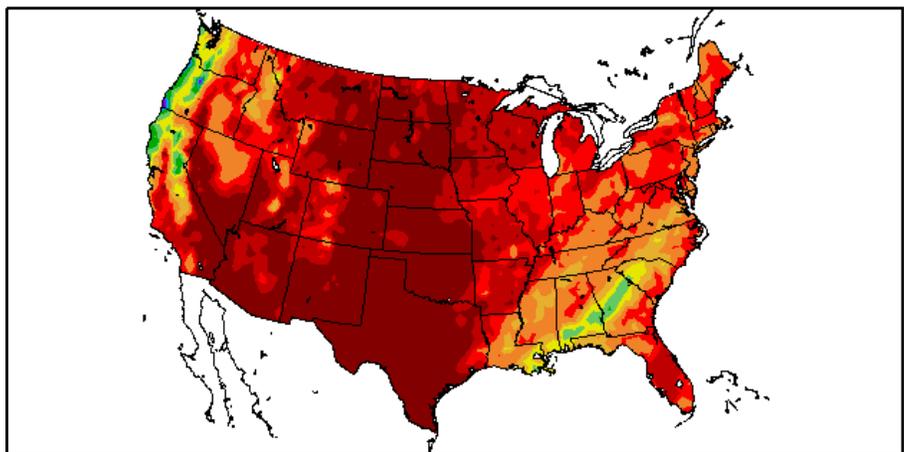
Generated 12/24/2015 at HPRCC using provisional data.

Regional Climate Centers

The [7-day total precipitation](#)

map prominently shows the highest amounts of precipitation over 3.5 inches in the California and Oregon coast, Cascades and Sierra Nevada, and in the Southeast. Much of the remainder of the country had less than 2 inch of precipitation or was dry for the week.

Precipitation (in)
12/17/2015 – 12/23/2015



Generated 12/24/2015 at HPRCC using provisional data.

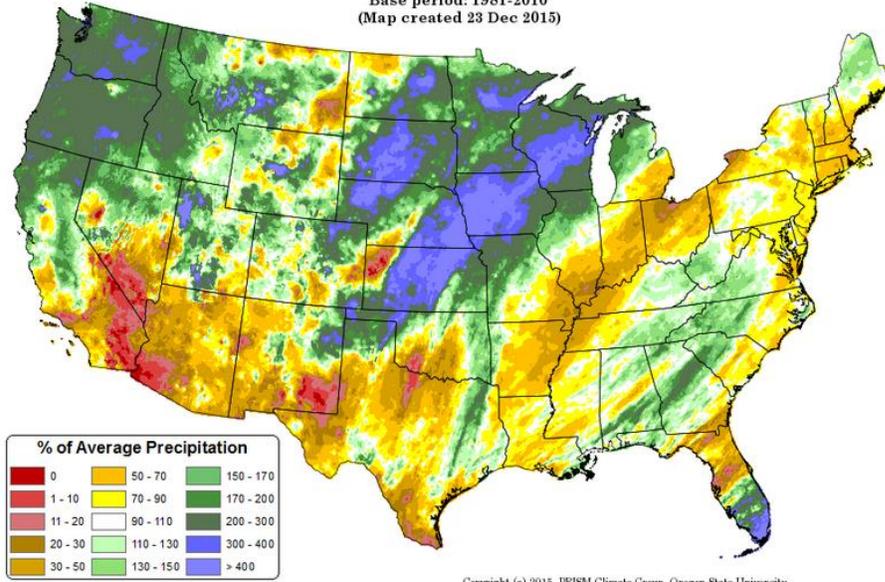
Regional Climate Centers

Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

Total Precipitation Anomaly: 01 December 2015 - 22 December 2015

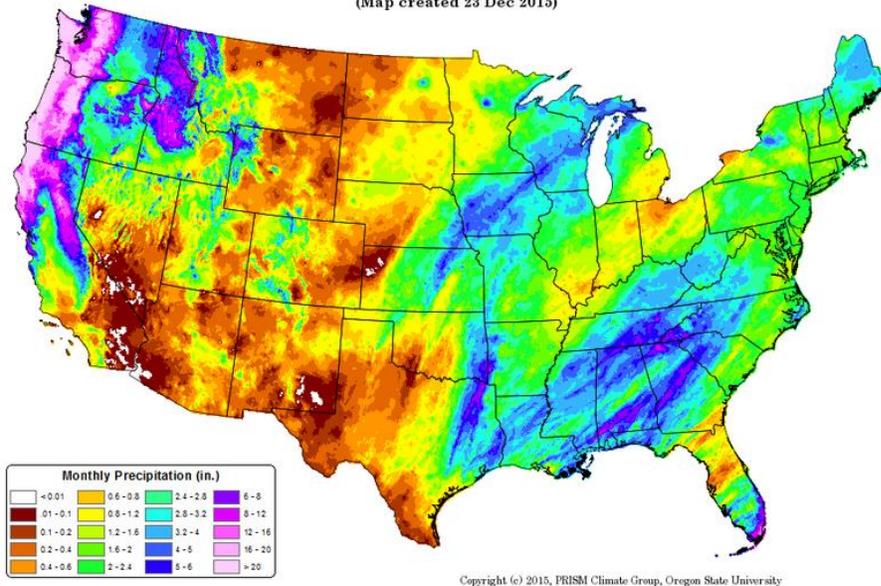
Period ending 7 AM EST 22 Dec 2015
Base period: 1981-2010
(Map created 23 Dec 2015)



For the month of December to date, the national [precipitation percent of average](#) map shows the largest area of well above average precipitation in the central to northern U.S., southern Florida, and the Pacific Northwest. Drier than average areas includes parts of the Southwest, southern California, the Ohio Valley and other smaller areas across the country.

Total Precipitation: 01 December 2015 - 22 December 2015

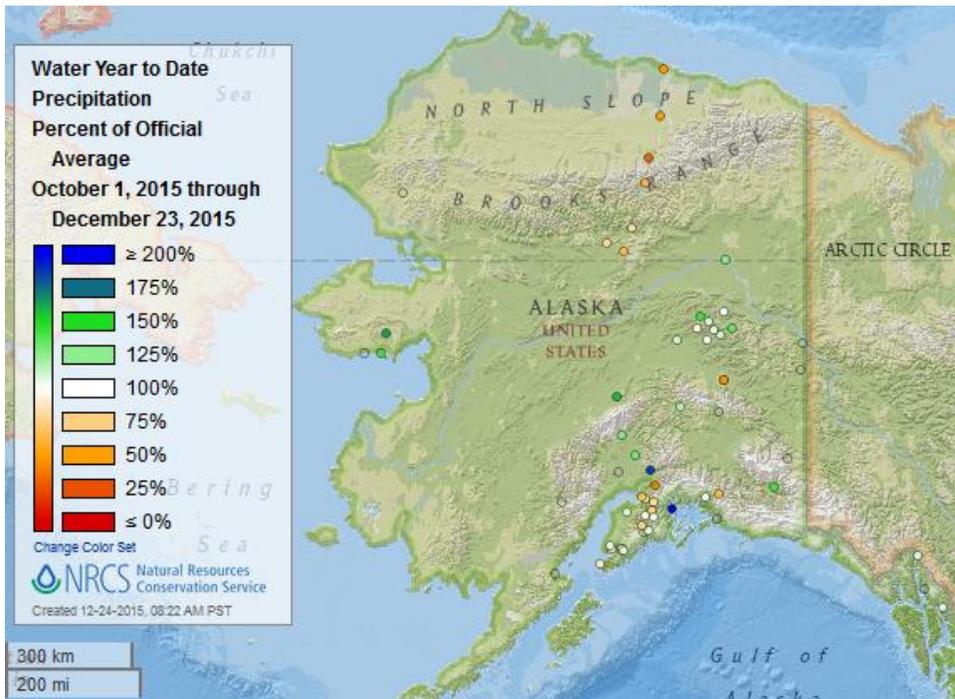
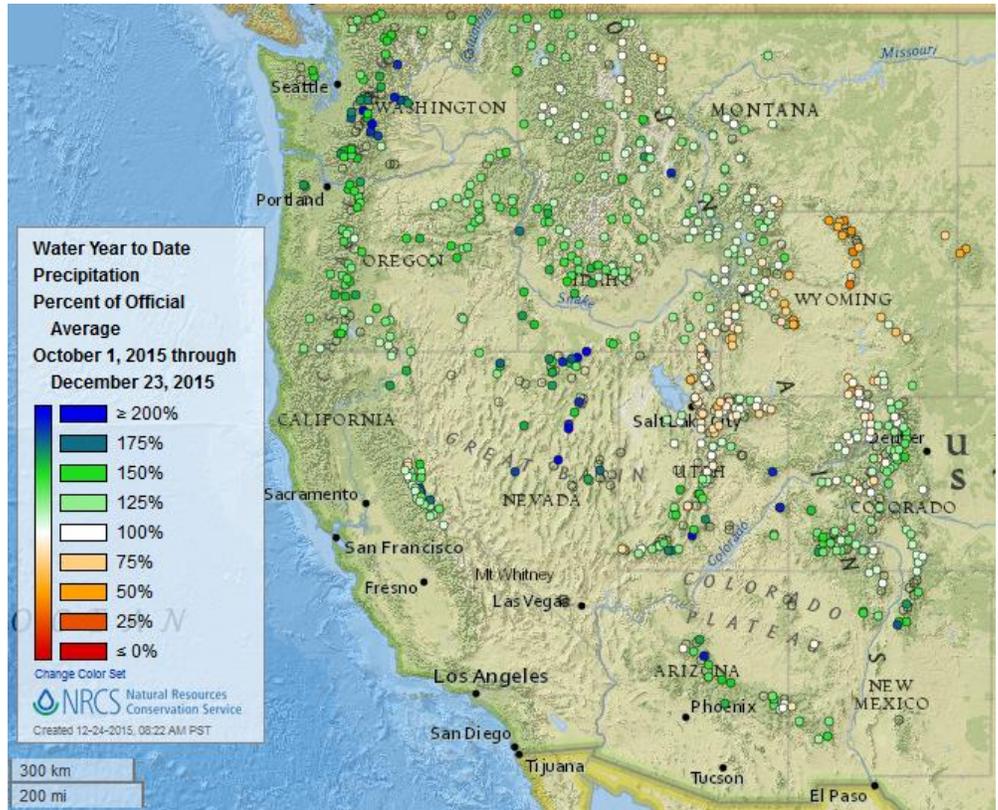
Period ending 7 AM EST 22 Dec 2015
(Map created 23 Dec 2015)



The December month-to-date [total precipitation map](#) highlights heavy precipitation in the western edge of the Pacific Northwest into northern California, where amounts exceeded 16 inches, in the Southeast and in southern Florida with amounts exceeding 12 inches. Noticeably dry areas include small areas of southern California, western Great Plains, valleys in the Southwest, and the Ohio Valley.

Water Year-to-Date, Western Mountain Sites (NRCS SNOTEL Network)

For the [2016 water year to date precipitation percent of average](#) that began on October 1, 2015, much of the West is reporting average to above average precipitation. Below average areas include much of Wyoming and a few stations east of the Rocky Mountains.



The [Alaska water year to date precipitation percent of average](#) map shows a mix of above, near, and below average sites throughout the state.

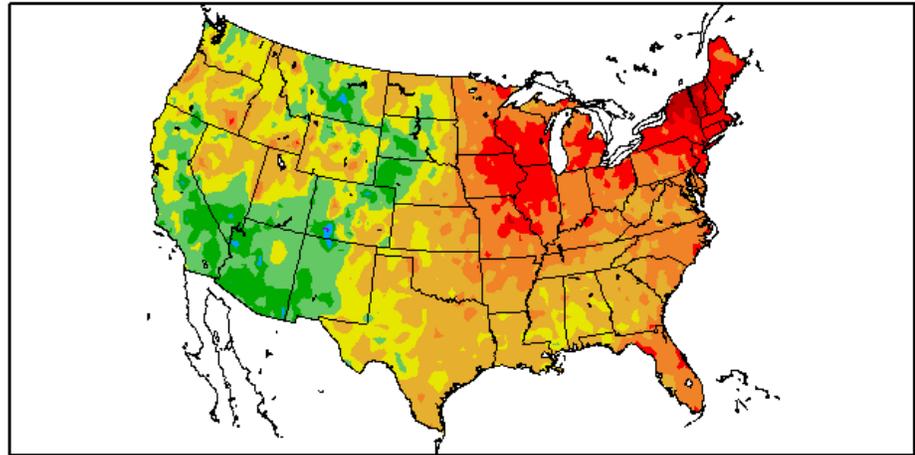
Temperature

Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

The map of the [average temperature anomalies](#) for the past week shows most of the country was warmer than normal for the week, with the central U.S. and Northeast reporting temperatures of over 12 degrees above normal. The coolest areas of the country were in the Southwest, southern Rockies and into the northern Plains.

Departure from Normal Temperature (F)
12/16/2015 - 12/22/2015



Generated 12/23/2015 at HPRCC using provisional data.

Regional Climate Centers

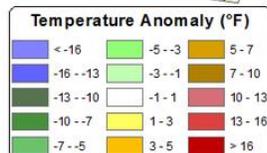
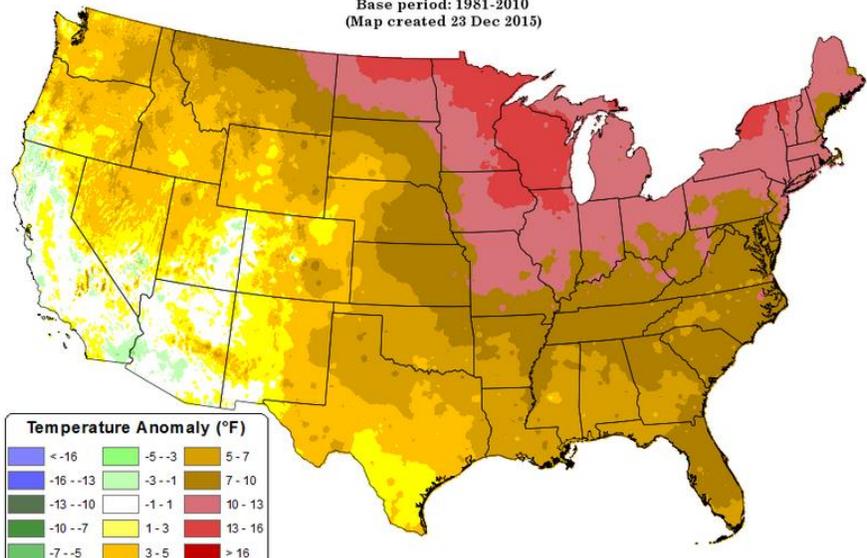
Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

For December 2015, the national [daily mean temperature anomaly](#) map shows well above normal temperatures in the upper Midwest and northern Great Plains. Most of the remainder of the country was also above normal, to a lesser extent.

The exception to this was in the Southwest, which has areas near normal for the month.

Daily Mean Temperature Anomaly: 01 December 2015 - 22 December 2015
Period ending 7 AM EST 22 Dec 2015
Base period: 1981-2010
(Map created 23 Dec 2015)

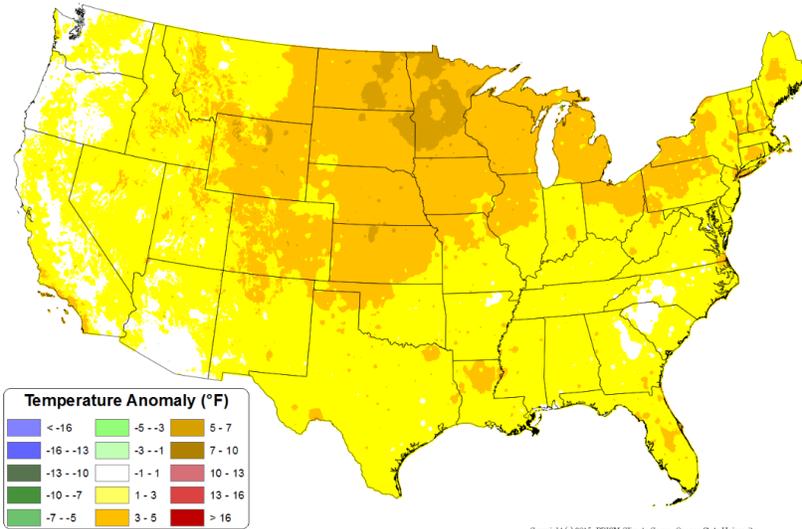


Copyright (c) 2015, PRISM Climate Group, Oregon State University

Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

Daily Mean Temperature Anomaly: September 2015 - November 2015
 Period ending 7 AM EST 30 Nov 2015
 Base period: 1981-2010
 (Map created 02 Dec 2015)



The September through November national [daily mean temperature anomaly](#) map shows most of the country reporting conditions slightly above average. The largest warm anomaly for the past three months was in the upper Midwest, centered in Minnesota.

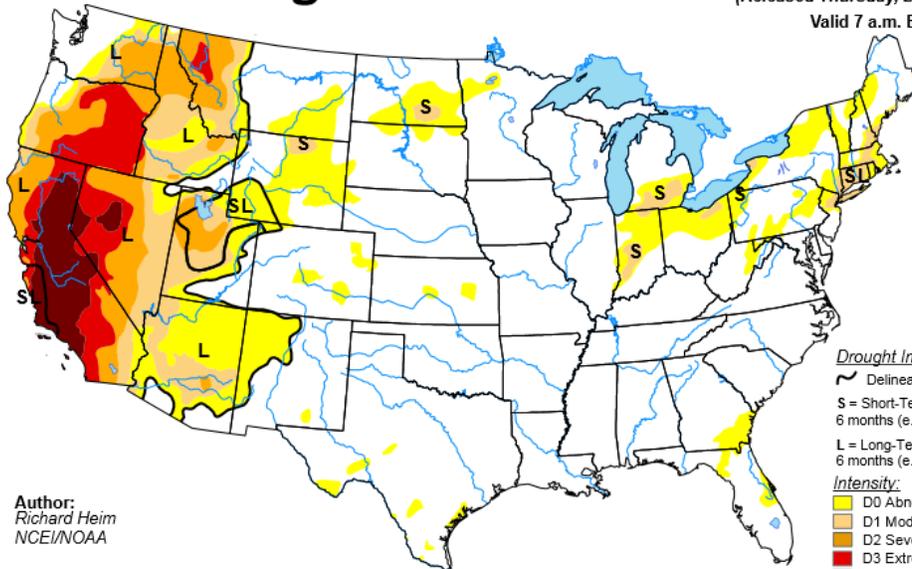
Drought

[U.S. Drought Portal](#) Comprehensive drought resource

[U.S. Drought Monitor](#) See map below. Drought conditions continue in the West Coast states, including the exceptional drought in California and Nevada.

U.S. Drought Monitor

December 22, 2015
 (Released Thursday, Dec. 24, 2015)
 Valid 7 a.m. EST

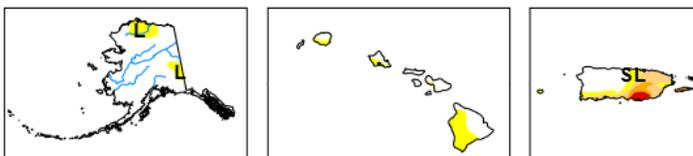


Author:
 Richard Heim
 NCEI/NOAA

Drought Impact Types:
 ~ Delineates dominant impacts
 S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
 L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

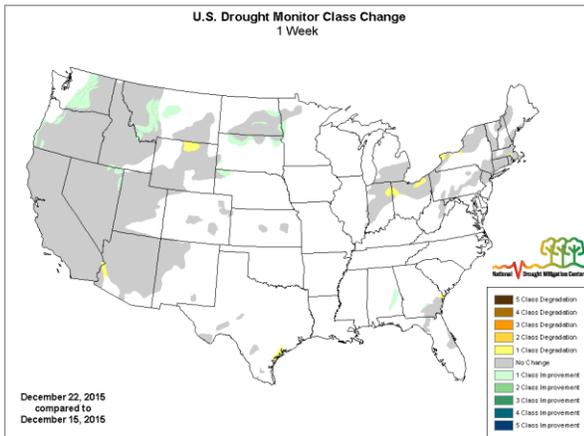
Intensity:
 D0 Abnormally Dry
 D1 Moderate Drought
 D2 Severe Drought
 D3 Extreme Drought
 D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

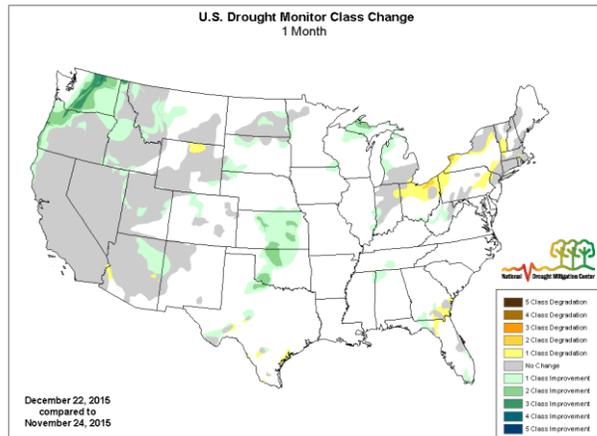


USDA
 National Drought Mitigation Center
<http://droughtmonitor.unl.edu/>

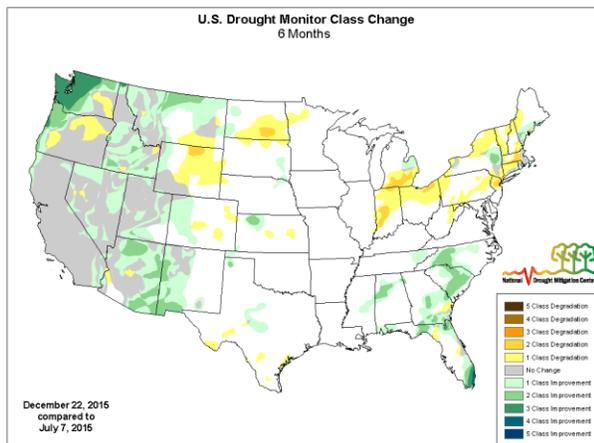
Changes in Drought Monitor Categories over Time



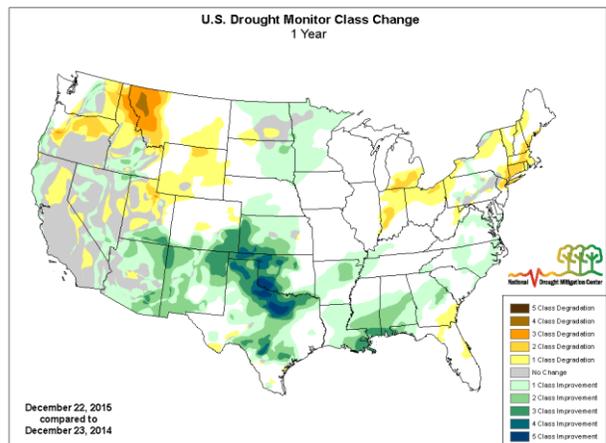
<http://droughtmonitor.unl.edu>



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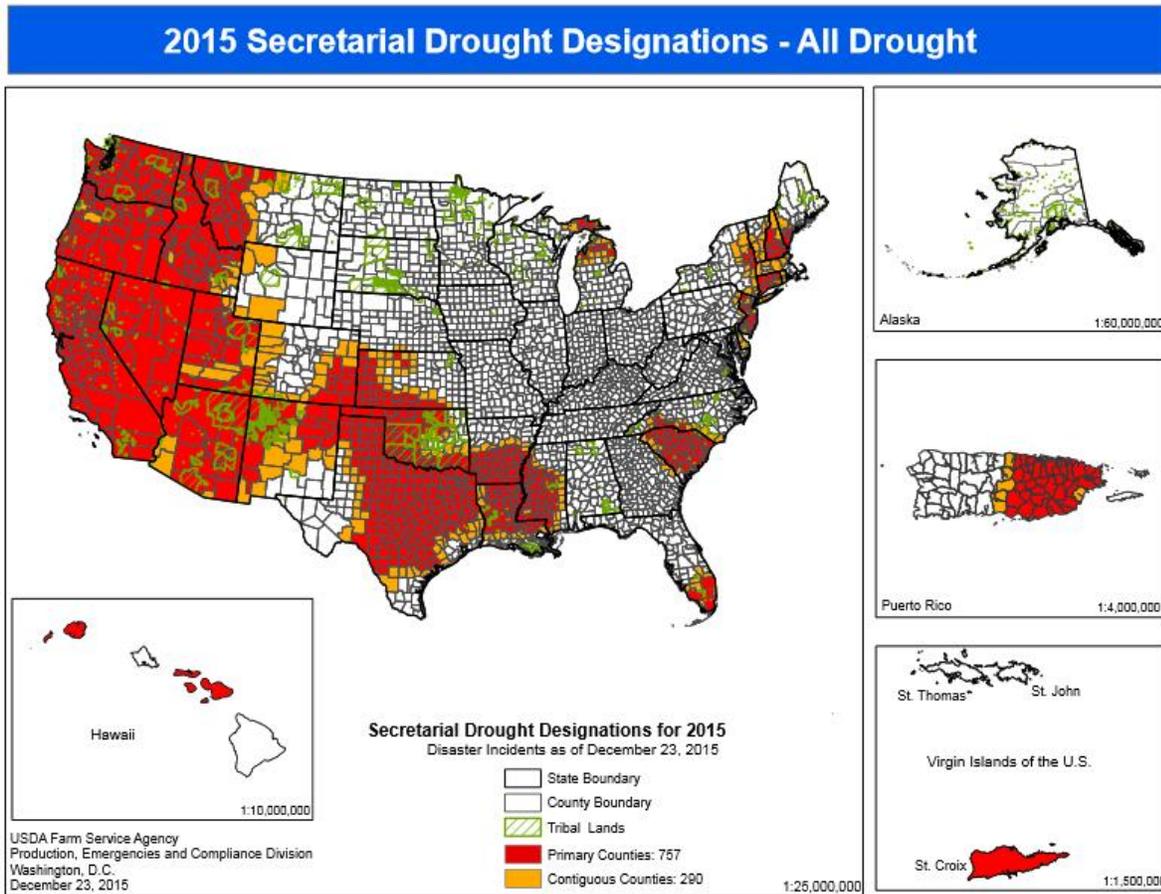
<http://droughtmonitor.unl.edu>



<http://droughtmonitor.unl.edu>

Drought conditions have improved in much of the country, especially in the south-central U.S. The West has shown improvement, but long-term drought persists.

2015 USDA Drought Designations



[Drought Designations as of December 9, 2015](#)

[USDA Disaster and Drought Information](#)

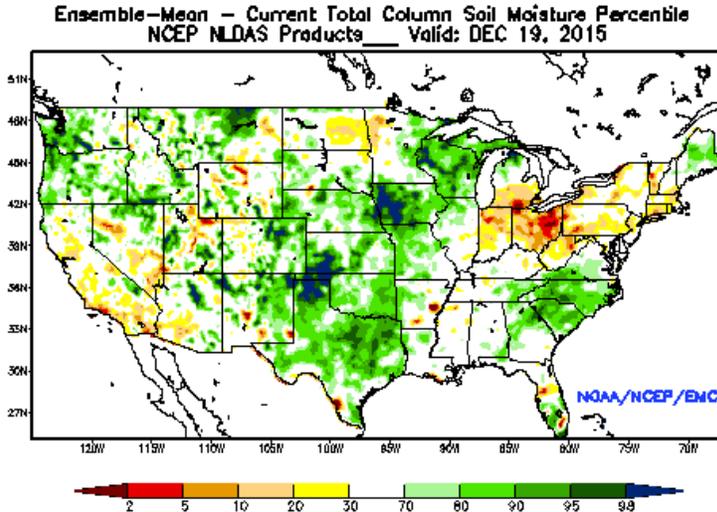
[U.S. Population in Drought, Weekly Comparison](#)

Highlighted Drought Resources

- [Drought Impact Reporter](#)
- [Quarterly Regional Climate Impacts and Outlook](#)
- [U.S. Drought Portal Indicators and Monitoring](#)

Other Climatic and Water Supply Indicators

Soil Moisture



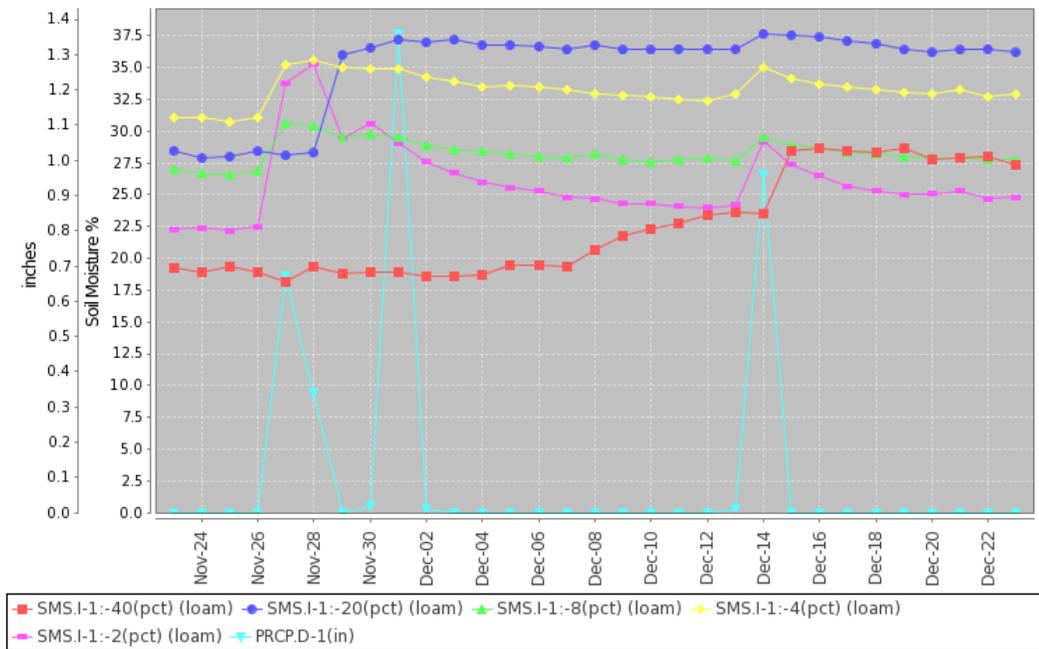
The modeled [soil moisture percentiles](#) as of December 19, 2015 show scattered areas of dryness in the West, the Midwest, and Northeast.

Above average soil moisture was modeled in much of the Pacific Northwest, northern Texas, Iowa and the Southeast.

[University of Washington Experimental Modeled Soil Moisture](#)

Soil Moisture Data: NRCS [Soil Climate Analysis Network \(SCAN\)](#)

Station (2022) MONTH=2015-11-23 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision
Wed Dec 23 21:51:41 GMT-08:00 2015



This graph shows soil moisture (at 2-, 4-, 8-, 20-, and 40-inch depths) and precipitation for the last 30 days at [Fort Reno #1 -SCAN site # 2022](#) in Oklahoma. Soil moisture response to the many recent precipitation events is noticeably increased at all depths.

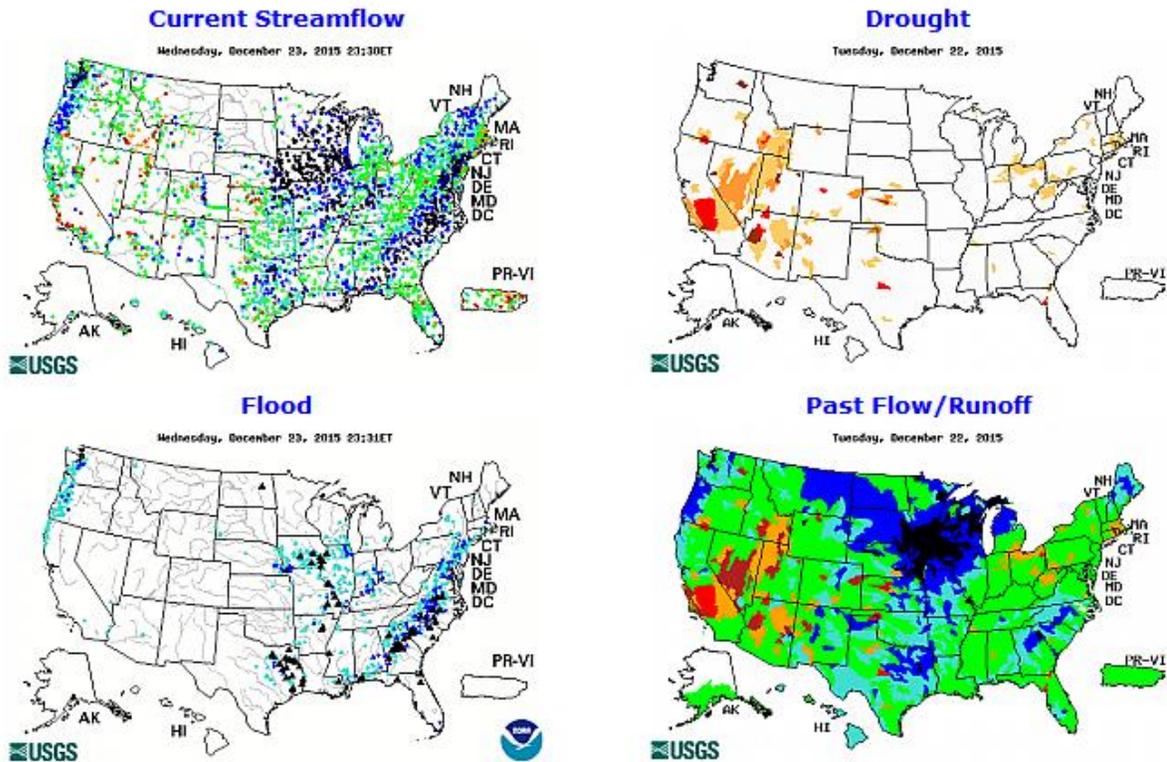
Soil Moisture Data Portals

[CRN Soil Moisture](#)

[Texas A&M University North American Soil Moisture Database](#)

Streamflow

Source: USGS



[Streamflow](#) is notably high in the Pacific Northwest, upper Midwest, lower Mississippi River Valley, and the Southeast. A large number of rivers in the central U.S., eastern Texas, along the Mississippi River and in the Southeast are above flood stage.

Select any individual map to enlarge and display a legend.

Current Reservoir Storage

[National Water and Climate Center Reservoir Data](#)

U.S. Bureau of Reclamation Hydromet Tea Cup Reservoir Depictions:

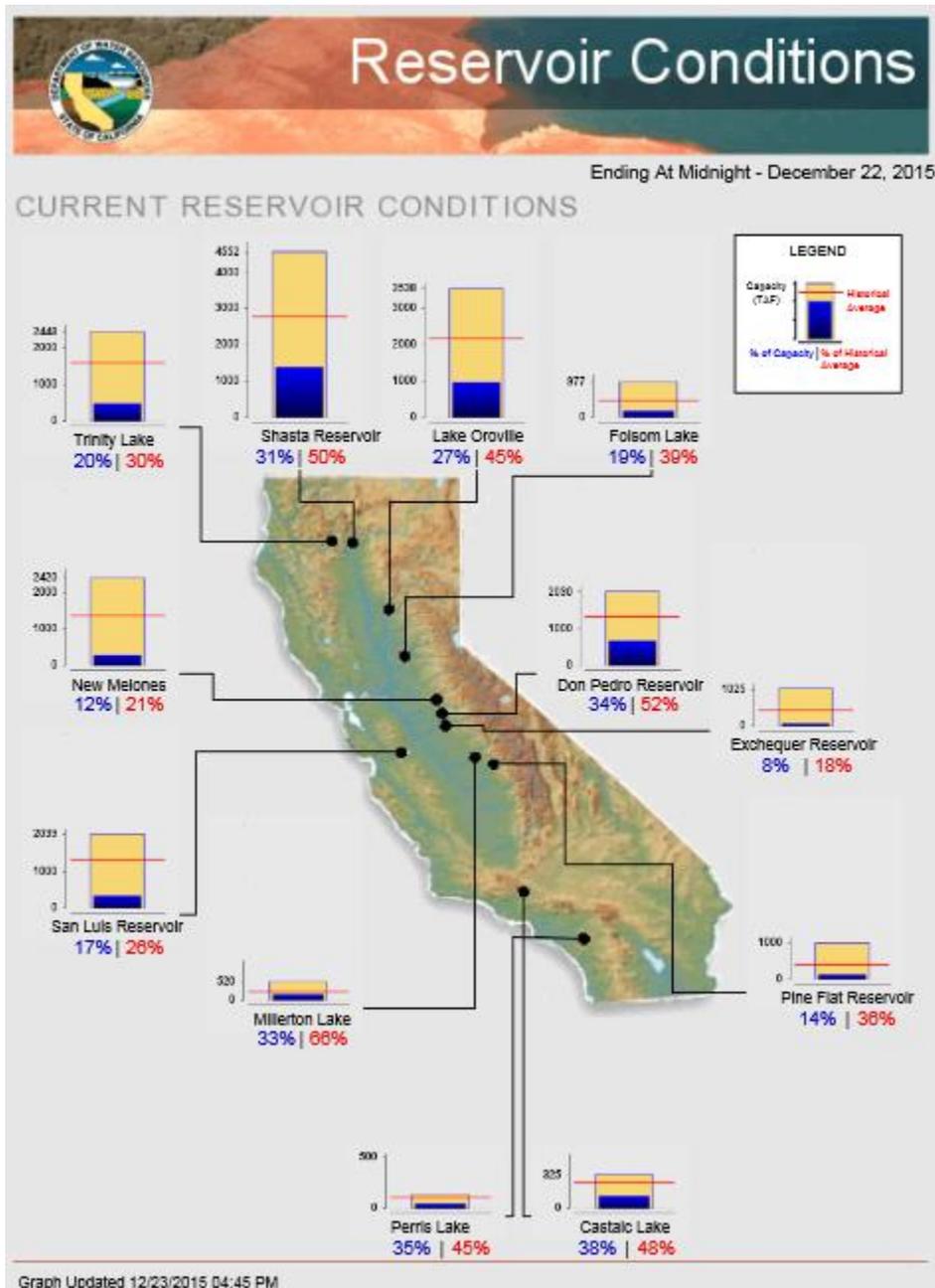
[Upper Colorado](#)

[Pacific Northwest/Snake/Columbia](#)

[Sevier River Water, Utah](#)

[Upper Missouri, Kansas, Oklahoma, Texas](#)

California Reservoir Conditions



Short- and Long-Range Outlooks

Agricultural Weather Highlights

Author: Mark Brusberg, Deputy Chief Meteorologist, USDA/OCE/WAOB

National Outlook, December 24, 2015: “An extremely active weather pattern will maintain a variety of extremes and result in large day-to-day changes in conditions. For the remainder of today, windy weather will subside across the Midwest, while showers will continue in the Southeast. Ongoing wetness across the South could lead to additional flooding during the next several days. Meanwhile, the storm system currently arriving in the western U.S. will begin to affect the nation’s mid-section during the holiday weekend. By Christmas Day, snow should spread from the Four Corners States into parts of Nebraska, South Dakota, and Wyoming. From December 26-28, the slow-moving storm could lead to heavy, wind-driven snow on the southern Plains and flooding and severe weather from the mid-South into the Southeast. The NWS 6- to 10-day outlook for December 29, 2015 – January 2, 2016, calls for the continuation of unseasonable warmth in the East, accompanied by near- to above-normal rainfall. Colder weather is expected from California to the central and eastern Plains. Rain is forecast for the Rio Grande Valley but drier conditions should prevail for much of the West, as well as portions of the southern Plains and lower Mississippi Valley.”

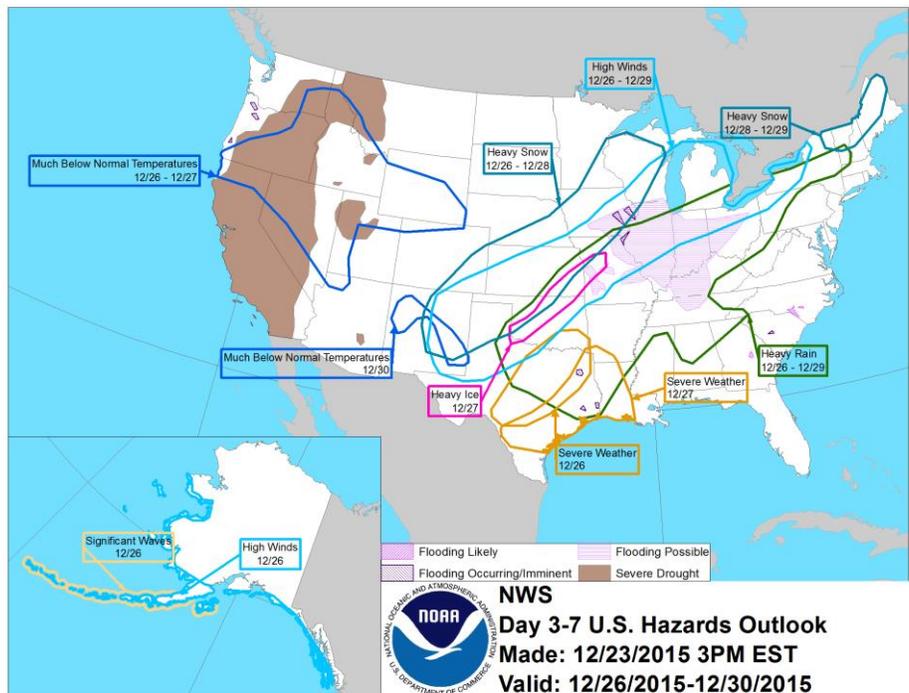
National Weather Hazards

The outlook for [weather hazards](#) over the next week includes heavy rain over most of Midwest into the East.

Heavy snow, high winds and ice is expected in from the Plains across much of the midsection of the country, and in northern New England. Severe weather is predicted for much of Texas and Louisiana. Cold temperatures are expected across much of the West, and part of the Southwest.

In Alaska, high winds and significant waves are expected along the Southwest coastal areas.

Flooding is occurring or likely in most of the upper Mississippi River basin, and in isolated spots in the Pacific Northwest. Severe drought covers a large area of the West.

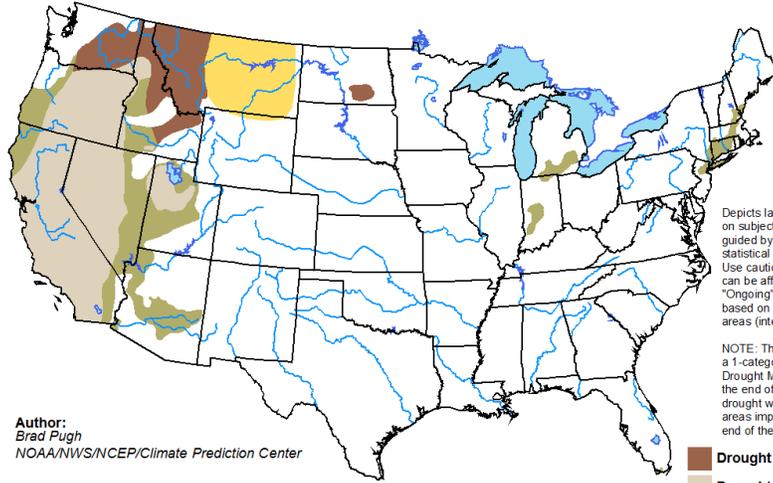


Seasonal Drought Outlook

During the next three months, **drought** will persist in the Northwest and may develop in eastern Montana, and Hawaii. Elsewhere, most drought designations are expected to improve.

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Valid for December 17 - March 31, 2016
Released December 17, 2015

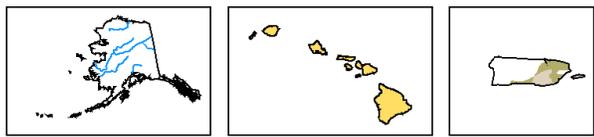


Author:
Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely

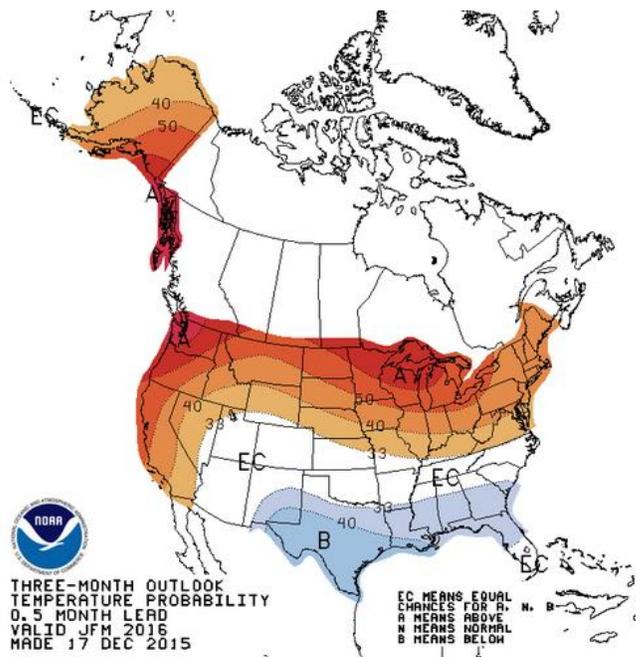
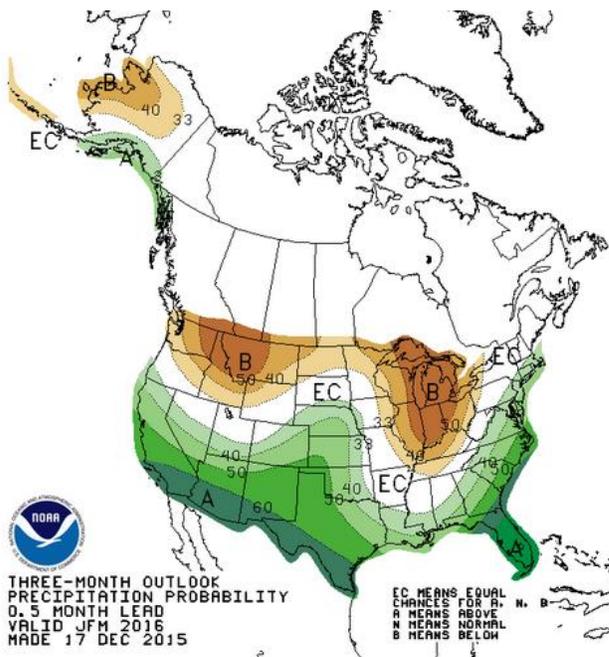


<http://go.usa.gov/3eZ73>

NWS Climate Prediction Center 3-Month Outlook

Precipitation

Temperature



THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID JFM 2016
MADE 17 DEC 2015

EC MEANS EQUAL CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.5 MONTH LEAD
VALID JFM 2016
MADE 17 DEC 2015

EC MEANS EQUAL CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW

Outlook Summary

NWS Climate Prediction Center:

“[The December-January-February \(DJF\) 2015-2016 precipitation outlook](#) indicates enhanced probabilities of above-median precipitation for California, the Southwest, the central and Southern Great Plains, the lower Mississippi Valley, and from the southeast North to southern New England. The probabilities are highest for above-median precipitation across southern California, the desert Southwest, West Texas, and Florida. Below-median precipitation amounts are most likely for parts of the Pacific Northwest, northern Rockies, and Great Lakes. A slight tilt in the odds for above (below)-median precipitation is forecast across southern coastal (western) Alaska.”

“[The December-January-February \(DJF\) 2015-2016 temperature outlook](#) favors above-normal temperatures across the continental U.S., north of the 40th parallel, along with much of the western U.S. Above-normal temperatures are also favored for most of Alaska. The odds of above-normal temperatures are highest across the Pacific Northwest and upper great lakes where probabilities of above-normal temperatures exceed 60 percent. Increased chances for below-normal temperatures during JFM are forecast across parts of the south-central and southeastern U.S.”

More Information

The NRCS [National Water and Climate Center](#) publishes this weekly report. We welcome your feedback. If you have questions or comments, please [contact us](#).